Plant file D.5

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
SURVEILLANCE AND ANALYSIS DIVISION
MICHIGAN-OHIO DISTRICT OFFICE

Compliance Monitoring Field Report

Facility

Pennwalt Corporation
Wyandotte Plant
4655 Biddle Avenue
Wyandotte, Michigan 48192
313-282-7800

Date of Evaluation: February 9, 1976

Participants

Pennwalt Corp.

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Wayne County APCD

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USEPA

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Facility Description

The Wyandotte Plant of the Pennwalt Corporation is divided into two facilities known as the East and West Plants. The East Plant, located on the bank of the Detroit River, is devoted to the production of inorganic chemicals. Chlorine is produced in 204 Diamond Alkali diaphragm cells. Caustic and calcium hypochlorite are also formed as byproducts of chlorine manufacture. In addition, there are facilities for production of ferric chloride from pickle liquor, and for dry ammonium chloride.

The West Plant, still occasionally referred to as Sharples Chemical, is a producer of organics, principally alkyl amines and alkanol amines, which are liquid or gas products. Some dry rubber compounding chemicals are also made here. Total employment at the two Pennwalt plants is about 850, and operations are normally around-the-clock.

There are few potential dust or smoke-producing operations at these plants. The only major baghouses here are located at the calcium hypochlorite (east plant) drying and bagging area, and in the rubber chemical (west plant) drying department. Most plant steam is provided by an adjacent Detroit Edison steam plant.

Results of Evaluation

On February 9, plant operations were essentially normal, and two sources of visible emissions were noted, one at the East Plant and one at the West Plant. The East Plant source was a stack for a Dowtherm vaporizer which is used to heat recirculating Dowtherm for an anhydrous ammonia concentrator. According to plant representatives, the Michigan Consolidated Gas Company had temporarily suspended natural gas service to Pennwalt and other industrial users on or about February 8, necessitating the use of #2 fuel oil in the vaporizer. Oil is normally burned only for four to six weeks per year; therefore, the smoke observed at the Dowtherm boiler on February 9 also represented startup and idle conditions prior to process use of this boiler while firing oil. In addition, plant personnel pointed out that there was a slight malfunction in the boiler firing control system on that day. The VE evaluation of the boiler stack (MODO 76-041) showed that the Wayne County smoke opacity regulation was never violated, but several readings of 30% were recorded. A brief second check of this stack on February 11 revealed no visible emissions, substantiating the vaporizer startup problems the company was experiencing on February 9.

At the West Plant, a peculiar phenomenon occurred, as a result of the generally southerly winds on that day. The company maintains a gas-fired flare to burn hydrogen sulfide for a few hours per day; this flare is located at the extreme south end of the plant property. Several operations in the West Plant leak ammonia to the atmosphere. When these vapors contact sulfur dioxide (or weak sulfuric or sulfurous acid, in moist air) from the H_2S flare, a white ammonium sulfate haze can be formed. Hence, under these particular wind conditions, the plant can appear to be in violation of the Wayne County smoke opacity regulations.

This H_2S flare also is in known violation of the County's sulfur dioxide limitations, and a control program is presently under design. According to plant officials, the H_2S flare will be retired permanently in about one year, when a new system, in which hydrogen sulfide and caustic will be contacted to form salable sodium hydrosulfite, will be started up.

Other than this haze, there are no other apparent visible problems at these plants. However, it should be noted that West Plant operations emit mildly offensive odors which have generated numerous citizen complaints. Since the Wayne County (Wyandotte) sewage treatment plant sludge incinerators are located a few hundred yards north of the West

Plant, some of these complaints have been wrongly attributed to Pennwalt. Nonetheless, the writer confirmed that the West Plant is responsible for some odors in the area.

Report Prepared By: Martin G. Trembly
Date: February 17, 1976